

Unbundling a Big Deal: Comparing Three Data Sources to Come to Decisions

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The Setting

University of Saskatchewan:

21 000+ students

(~3000 grad students)

1100+ faculty

Public university, largest in province

200+ academic programs

Medical/Doctoral

Member of the U15 (“research intensive”)



Image credit: Wikipedia

Background



- Canadian Research Knowledge Network (CRKN)
 - Canada's national consortium
- In late 2012 CRKN negotiations with American Chemical Society (ACS) broke down
- Appeared that individual libraries nationwide would need to handle their own negotiations with ACS for bundle of journals

Background

- It became clear that UofS would likely not be able to afford the entire bundle

= unbundle a big deal

Purpose

- ACS Web Editions bundle is a very important package to chemistry researchers

= need to make evidence-based decisions

- Recent SUNY Potsdam controversy (2012)

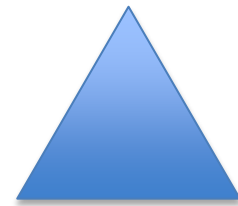
= heightened awareness & sensitivity

Objective

Use data available to develop a ranked list of most important ACS titles to subscribe to

“Triangulation” Method:

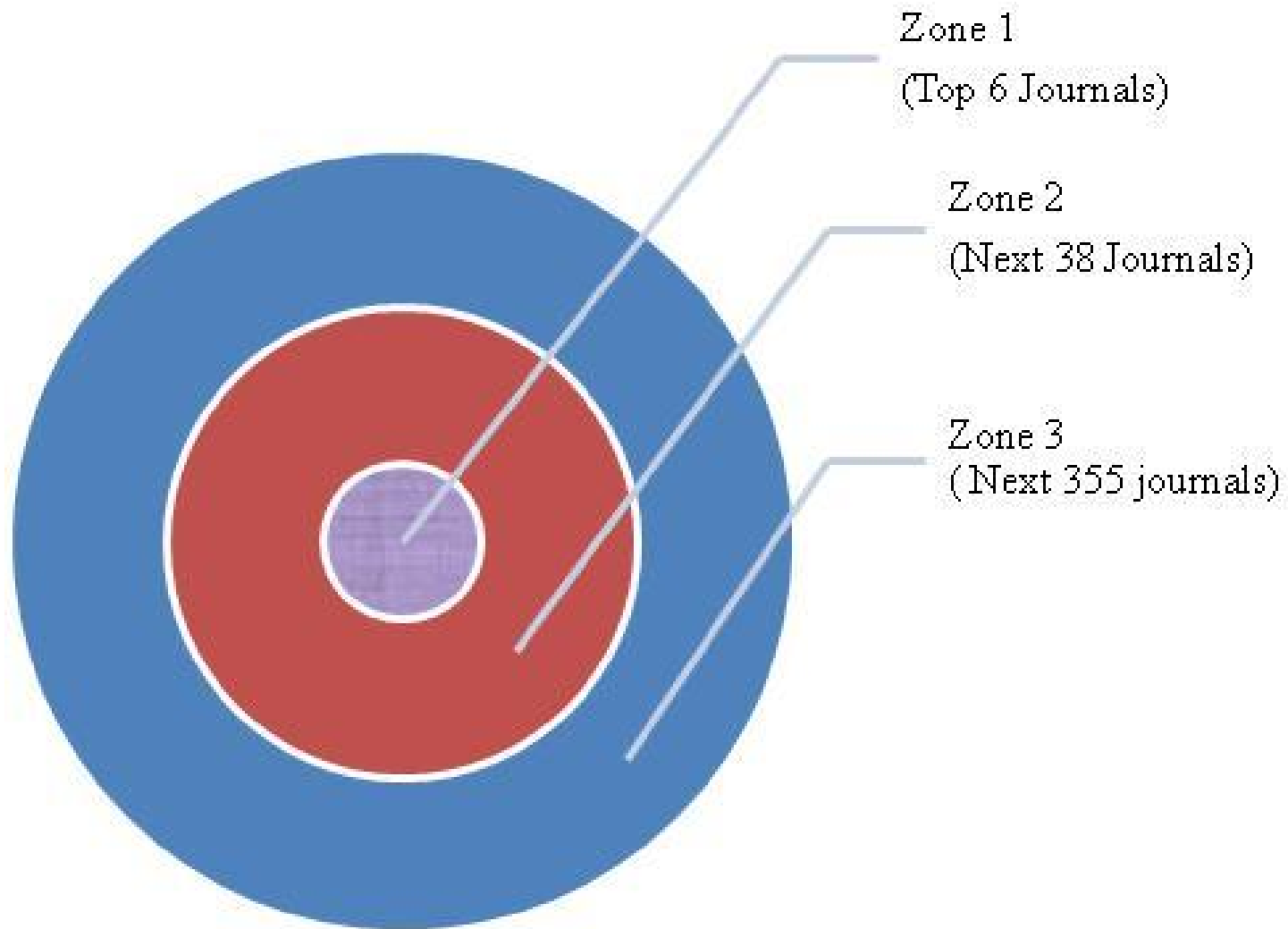
Three data sources



1. Usage data (# of full text downloads / year)
 - Most recent 3 yrs: 2011-2013
2. Citation analysis
 - Chemistry researcher’s publication venues
(Most recent 3 yrs: 2011-2013)
 - Reference lists in those articles
3. User survey

More on Methods

- Bradford's Law
 - Citation analysis method
 - Finds core journals in particular disciplines
 - Divide total citations into 3 roughly equal zones (of decreasing importance)
 - # of citations constant in each zone, but # of journal titles will increase across zones

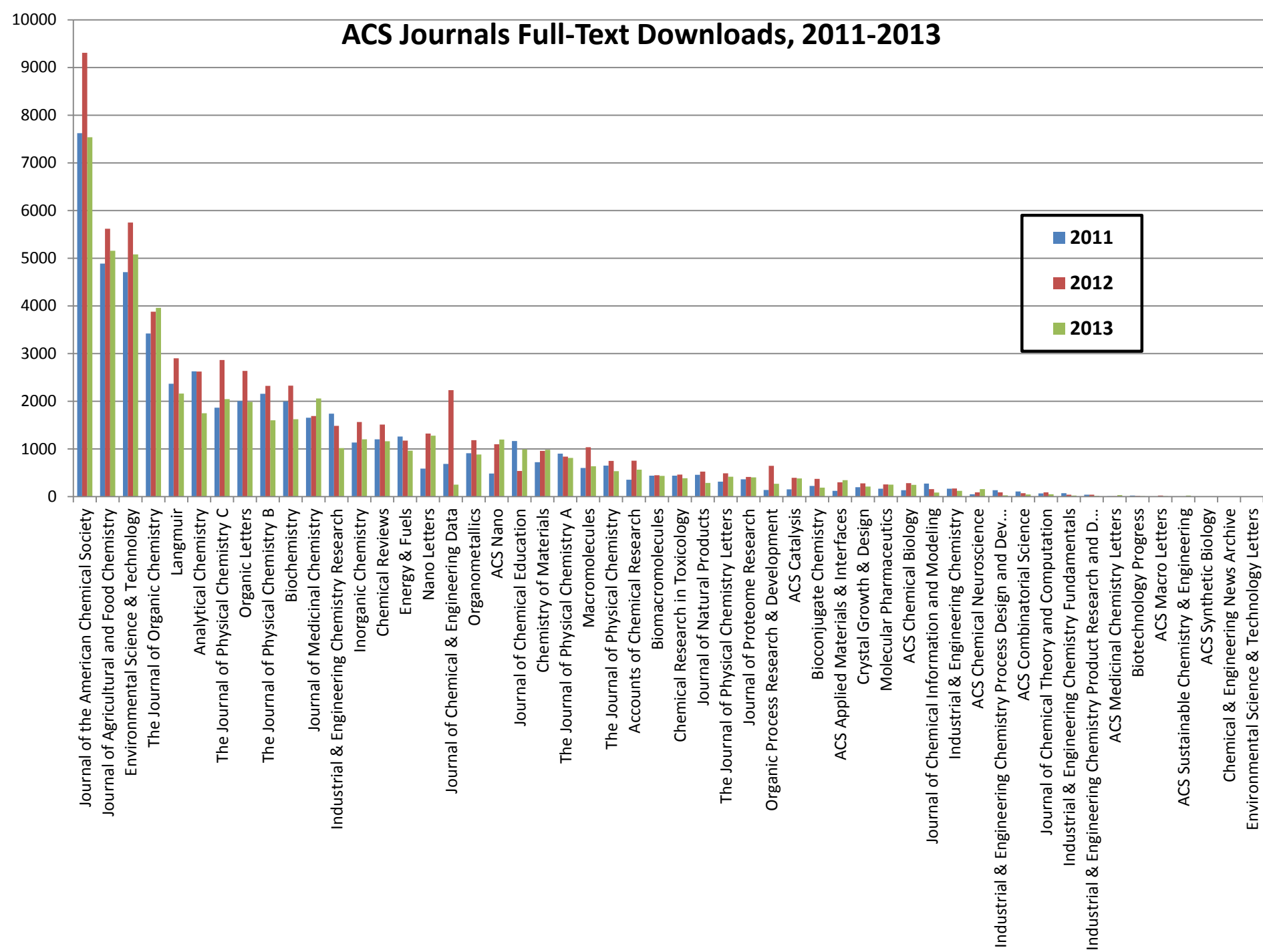


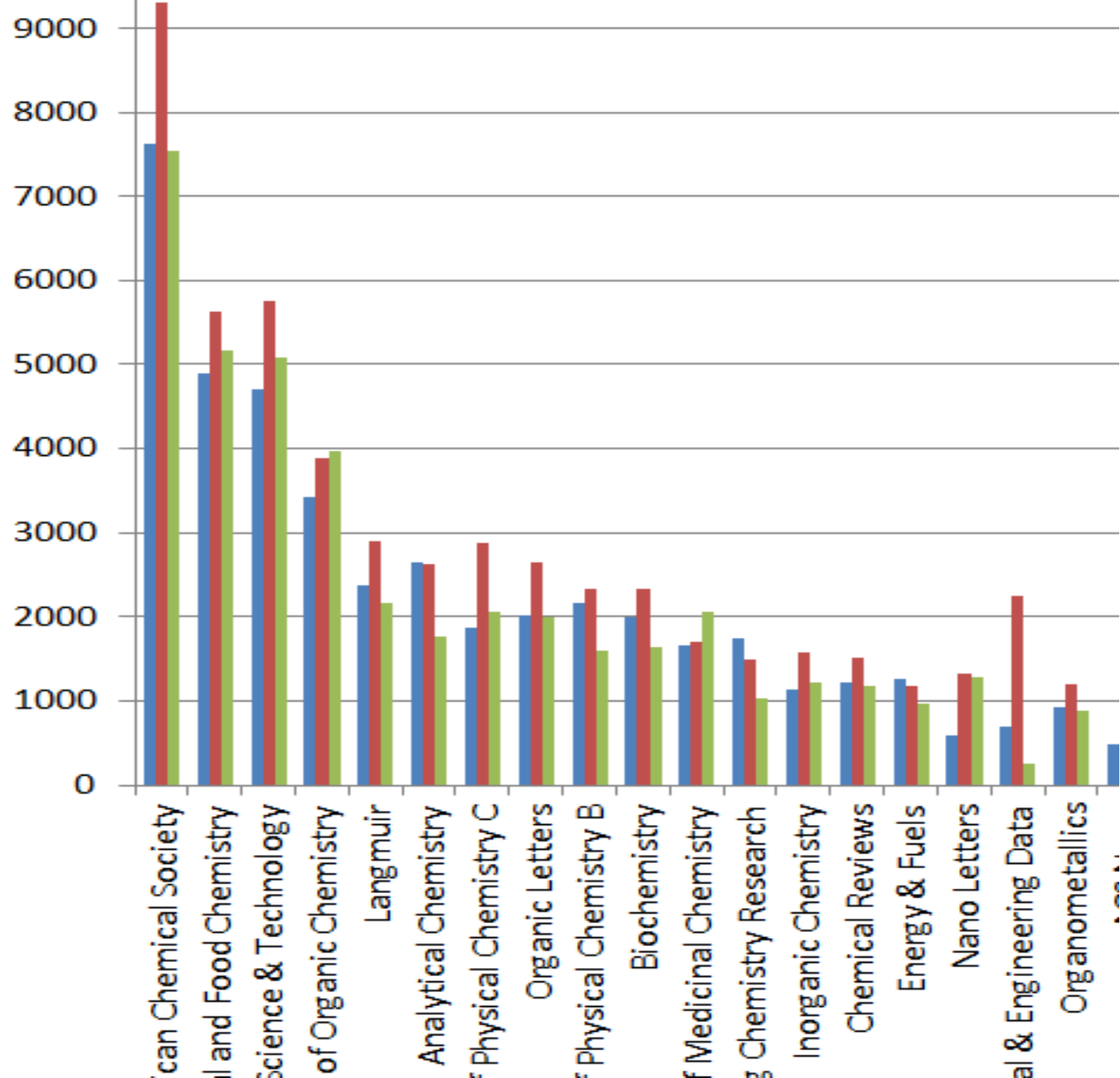
More on Methods

- Three zones I use based on terminology in survey:
 - Essential
 - Good to have
 - Unnecessary

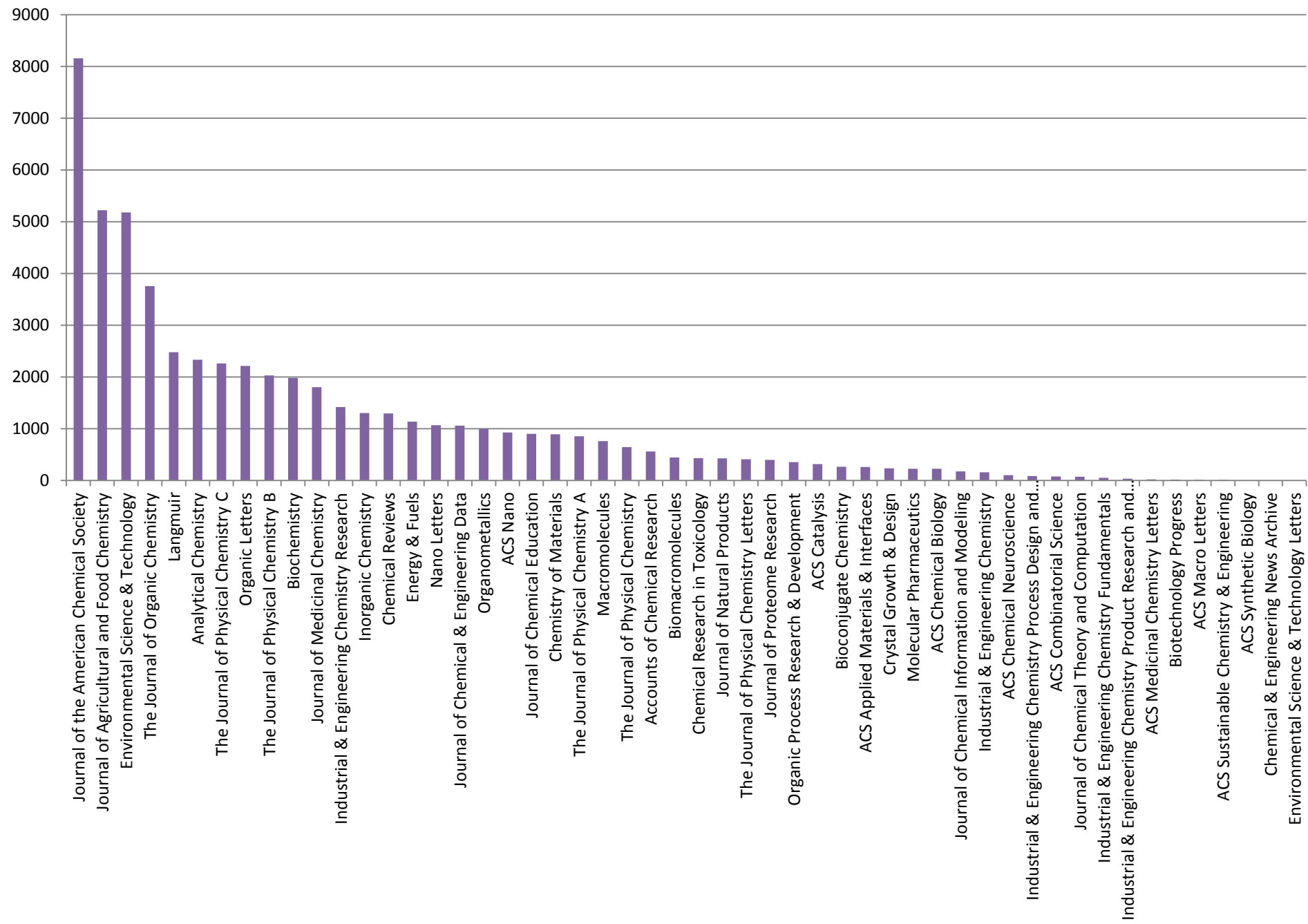
Usage Data

ACS Journals Full-Text Downloads, 2011-2013

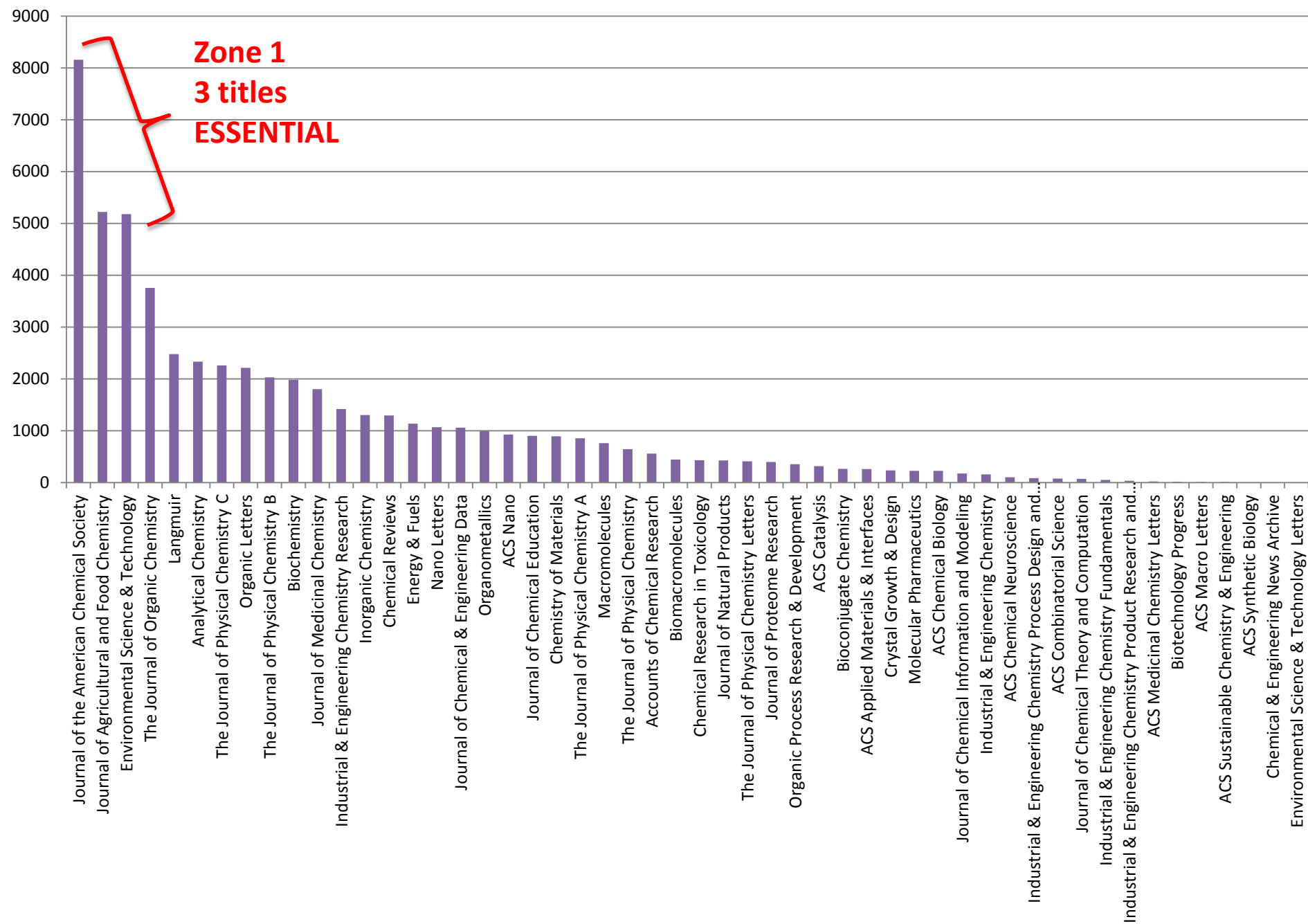




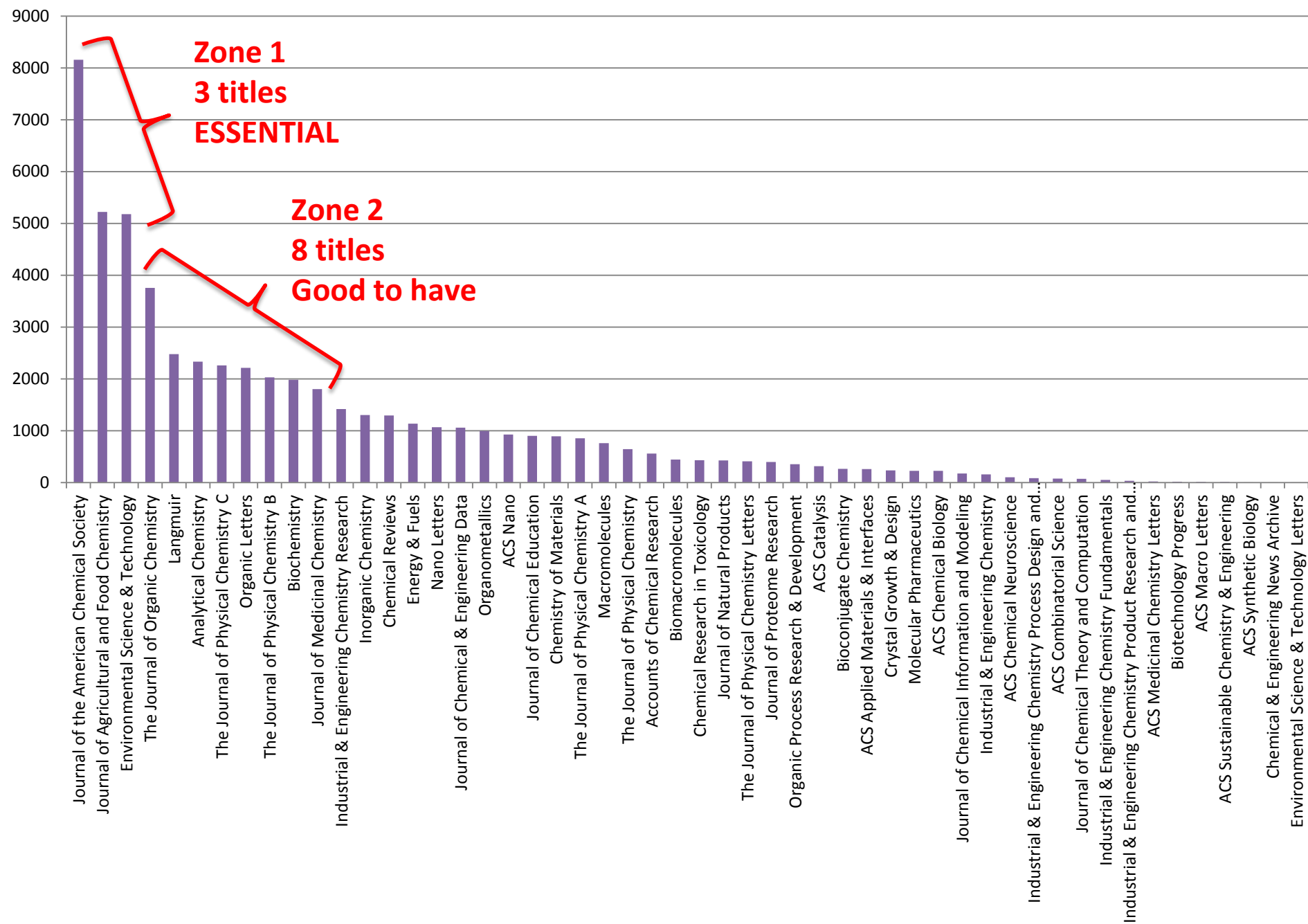
Average (Mean) Downloads / Title / Year



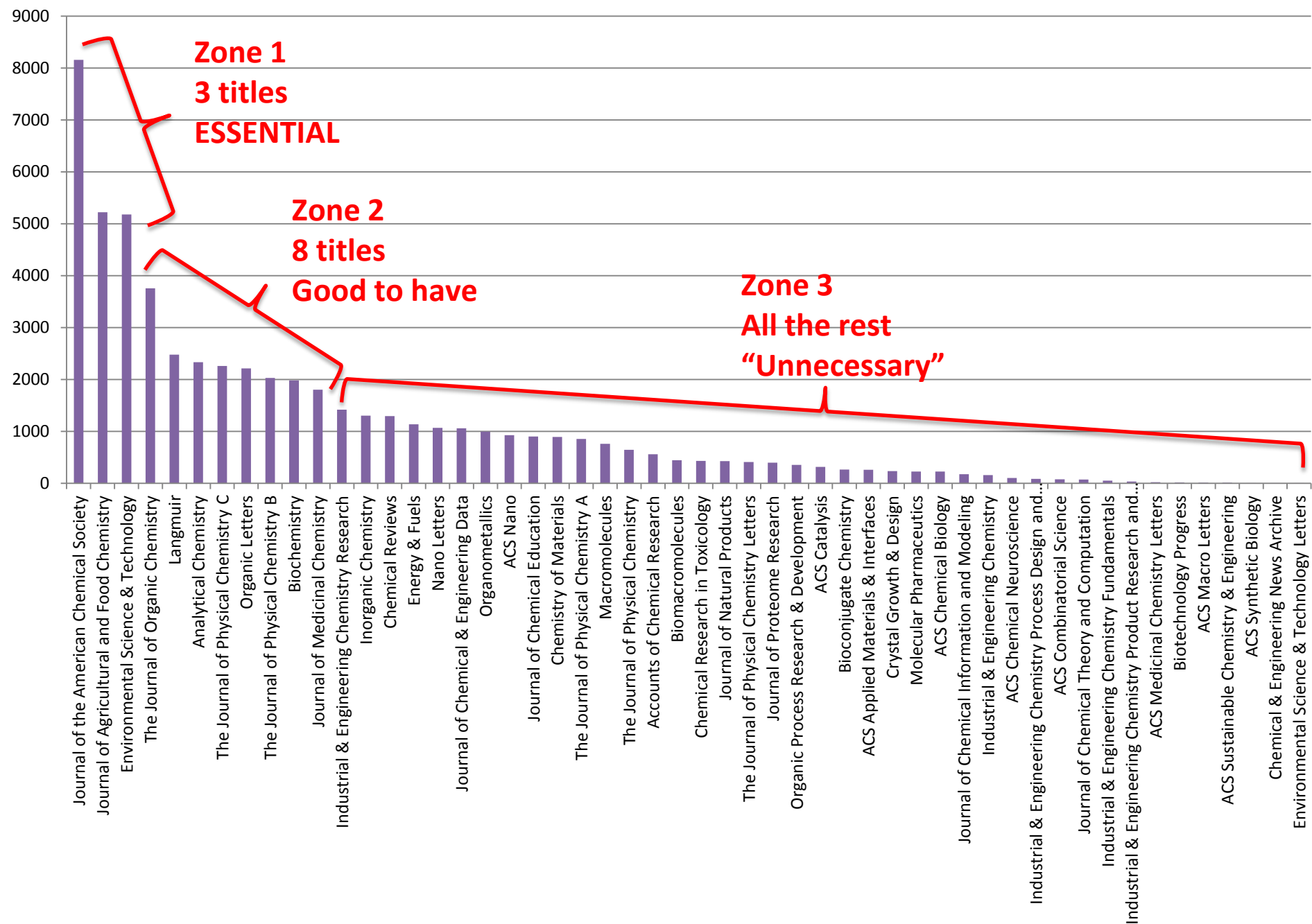
Average (Mean) Downloads / Title, 2011-2013



Average (Mean) Downloads / Title, 2011-2013



Average (Mean) Downloads / Title, 2011-2013



To Keep (Based on Usage)

ACS Journal Title

Journal of the American Chemical Society

Journal of Agricultural and Food Chemistry

Environmental Science & Technology

The Journal of Organic Chemistry

Langmuir

Analytical Chemistry

The Journal of Physical Chemistry A, B, & C

Organic Letters

Biochemistry

Journal of Medicinal Chemistry

Zone 1
ESSENTIAL

Zone 2
Good to have

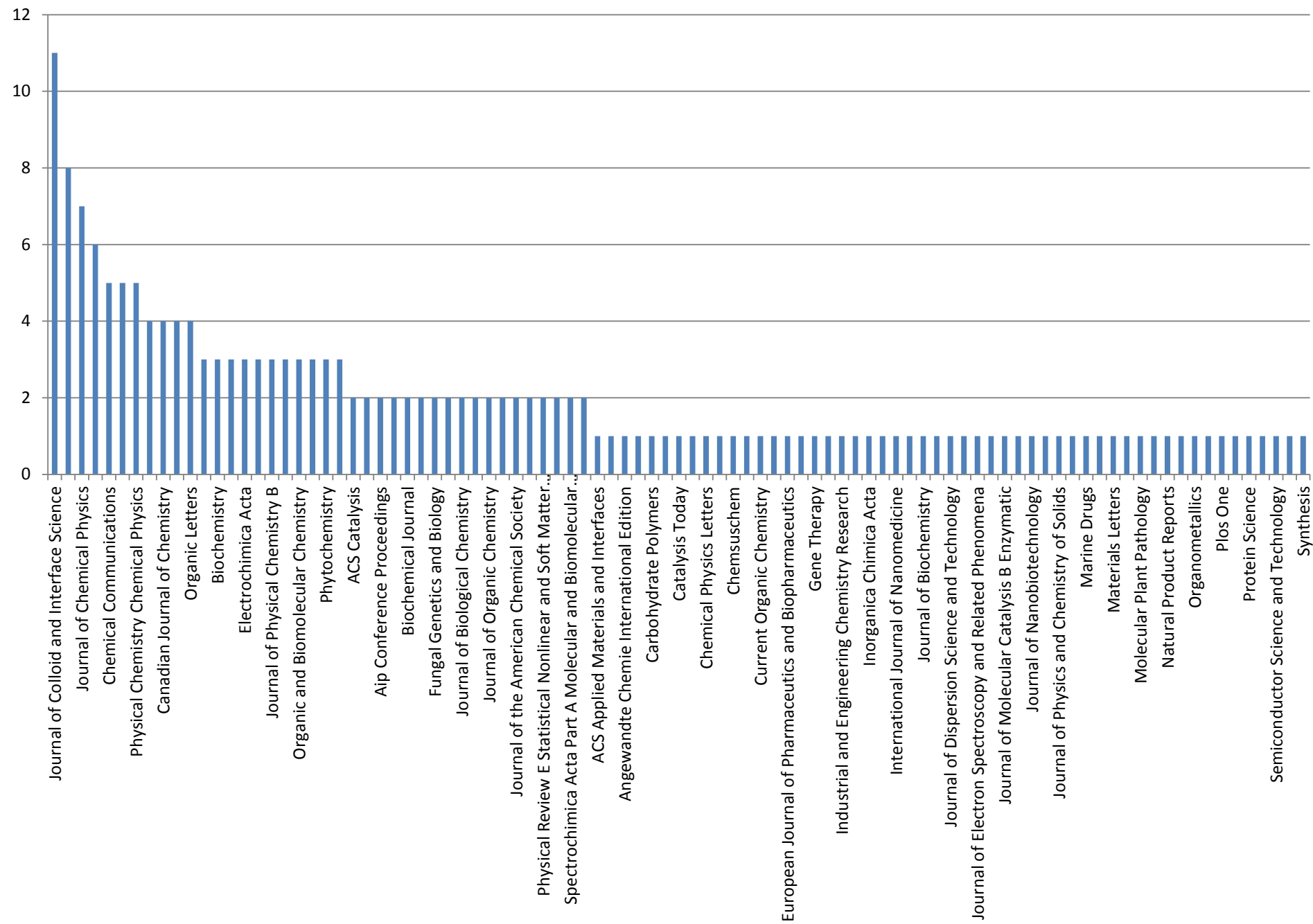
Citation Analysis

Citation Analysis Part 1:

Chemistry Researchers' Publication Venues

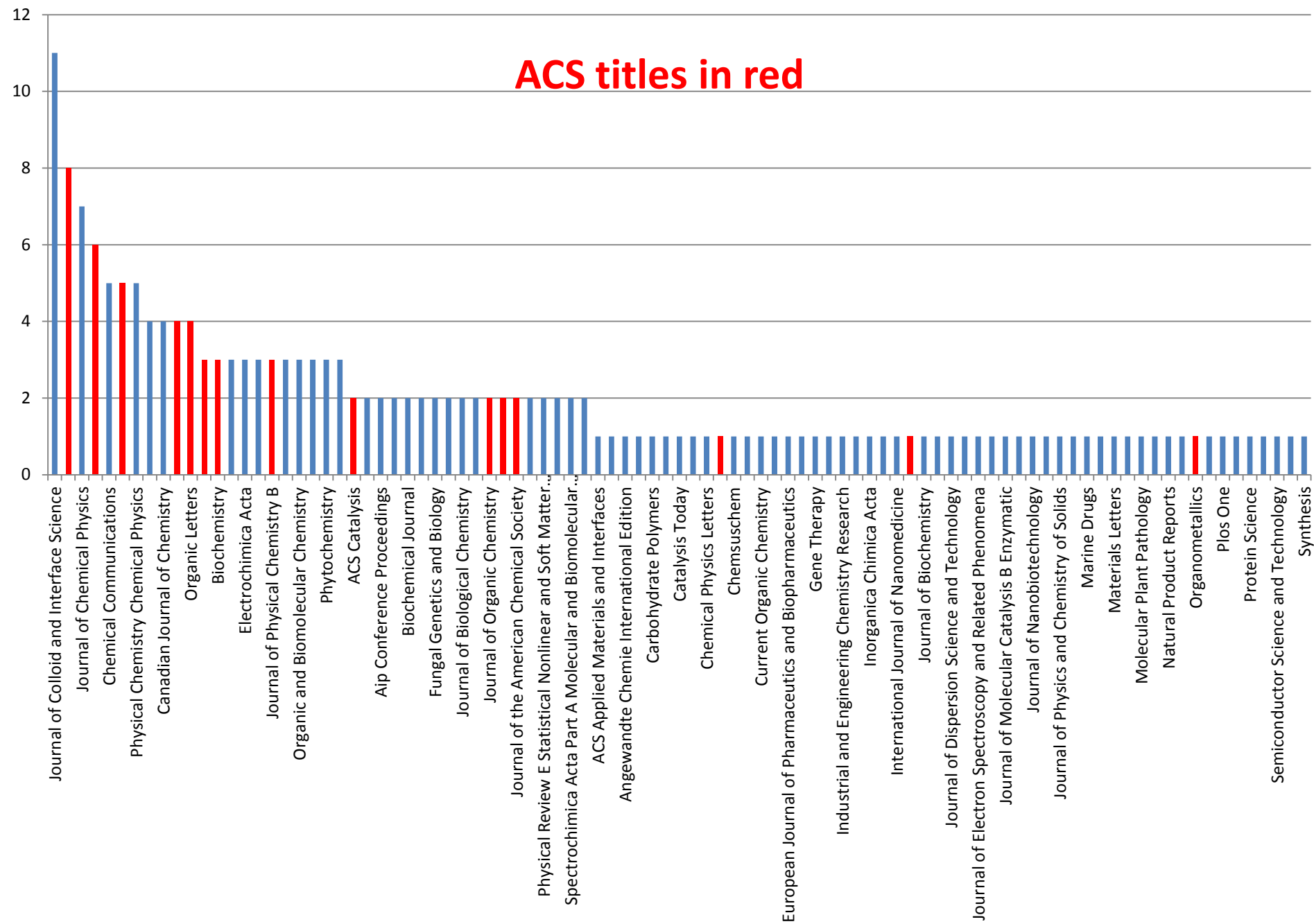
- affiliation searches of Scopus & WoS for 2011-2013
- Scopus = 185; WoS = 175
- 185 articles in 93 unique titles (ALL publishers)
- 53 titles were only published in once in the three years
- 15 of 93 titles were published by ACS (16.1%)

Times Published in (2011-2013)

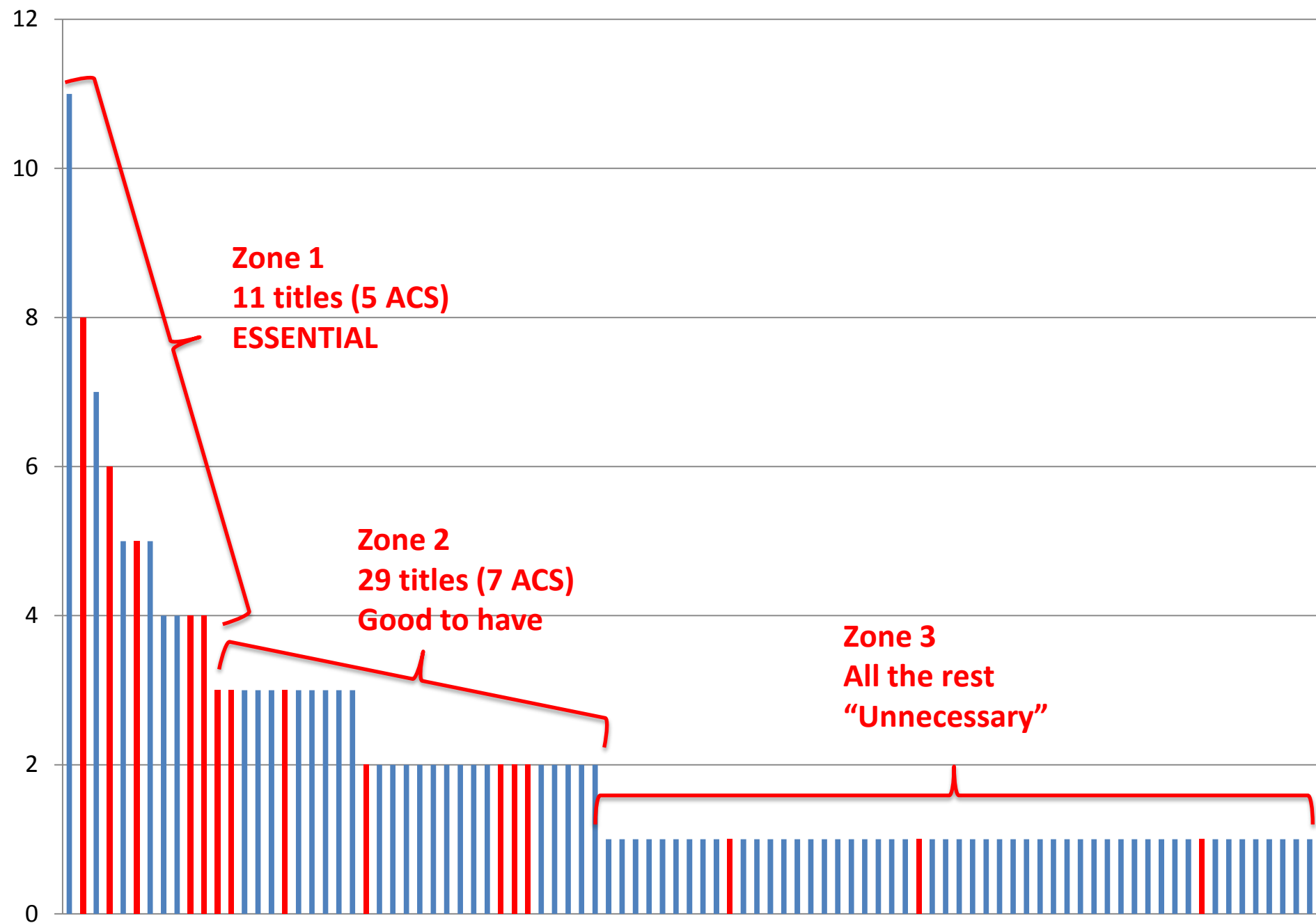


Times Published in (2011-2013)

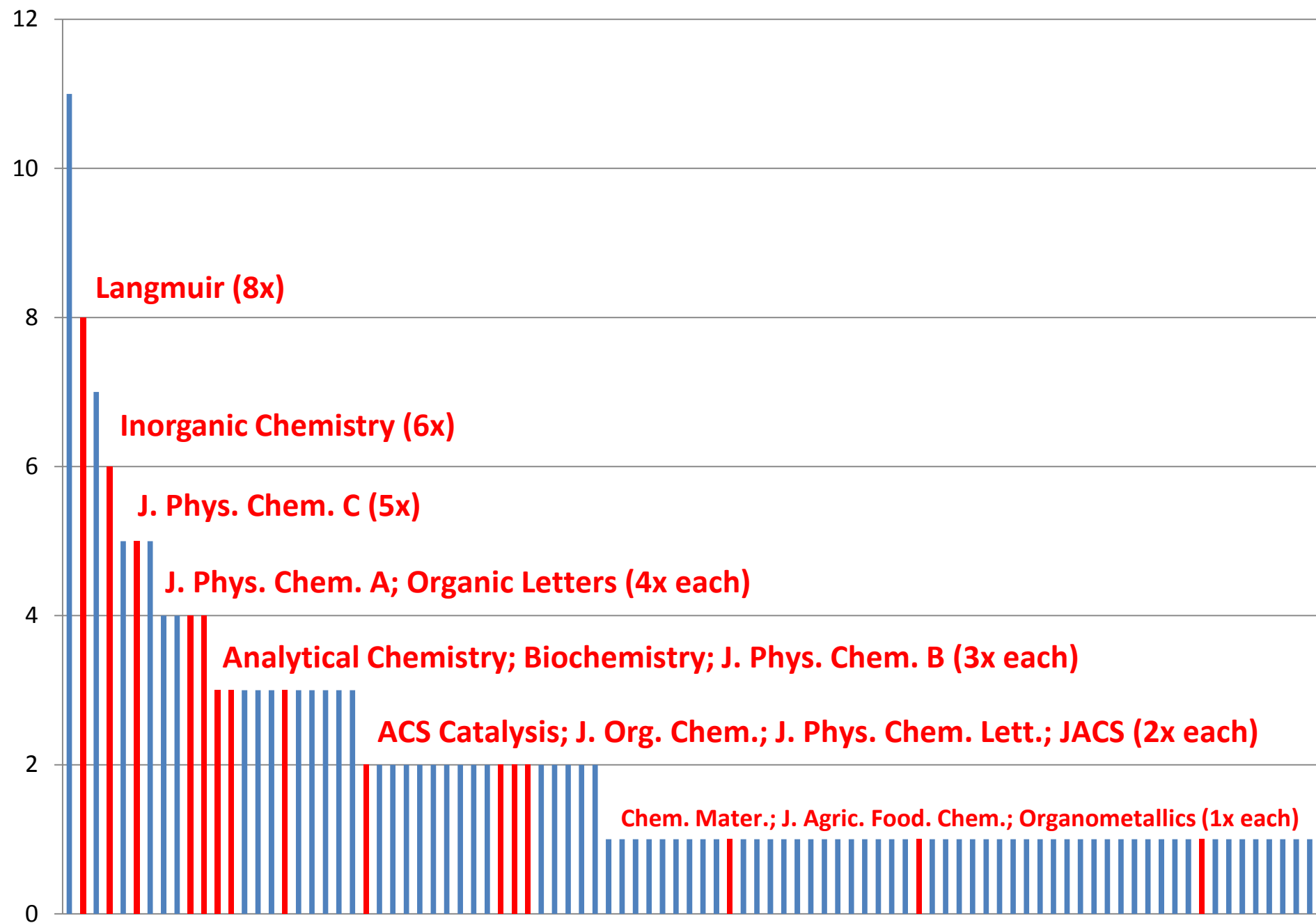
ACS titles in red



Times Published in (2011-2013) ACS Titles in Red



Times Published in (2011-2013) ACS Titles in Red



To Keep (Based on Citation Analysis Part 1)

ACS Journal Title	
Langmuir	Zone 1 ESSENTIAL
Inorganic Chemistry	
The Journal of Physical Chemistry A, B, & C	
Organic Letters	
Analytical Chemistry	Zone 2 Good to have
Biochemistry	
ACS Catalysis	
Journal of Organic Chemistry	
Journal of Physical Chemistry Letters	
Journal of the American Chemical Society	

Citation Analysis Part 2:

Chemistry Researcher's Reference Lists

- From the 185 articles published in 2011-2013...
6733 references cited
- List of 6733 sorted by most cited titles
- Used Bradford's Law to divide list into 3 roughly equal parts
- First $1/3$ = 26 journals (10 ACS)
= ESSENTIAL

Source Title	Times Cited
Journal of the American Chemical Society	310
Langmuir	157
Journal of Organic Chemistry	139
Journal of Chemical Physics	134
Journal of Physical Chemistry B	126
Angewandte Chemie - International Edition	104
Tetrahedron Letters	97
Tetrahedron	81
Chemical Communications	78
Physical Review Letters	77
Organometallics	76
Proceedings of the National Academy of Sciences of the United States of America	74
Science	73
Journal of Electroanalytical Chemistry	71
Journal of Physical Chemistry C	69
Journal of Biological Chemistry	64
Chemical Reviews	61
Journal of Physical Chemistry A	60
Nature	54
Journal of Physical Chemistry	52
Physical Review B	50
Physical Review B - Condensed Matter and Materials Physics	50
Organic Letters	49
Journal of Colloid And Interface Science	48
Journal of Organometallic Chemistry	48
Chemistry - A European Journal	46

To Keep (Based on Citation Analysis Part 2)

ACS Journal Title

Journal of the American Chemical Society

Langmuir

The Journal of Organic Chemistry

The Journal of Physical Chemistry A, B, & C

Organometallics

Chemical Reviews

Organic Letters

Zone 1
ESSENTIAL



To Keep (Based on Citation Analysis Part 2)

ACS Journal Title

Analytical Chemistry

Inorganic Chemistry

Biochemistry

Accounts of Chemical Research

Chemistry of Materials

Environmental Science & Technology

Nano Letters

ACS Nano

Journal of Medicinal Chemistry

Macromolecules

Energy & Fuels

Crystal Growth & Design

Journal of Agricultural and Food Chemistry

Journal of Physical Chemistry Letters

Zone 2
Good to have

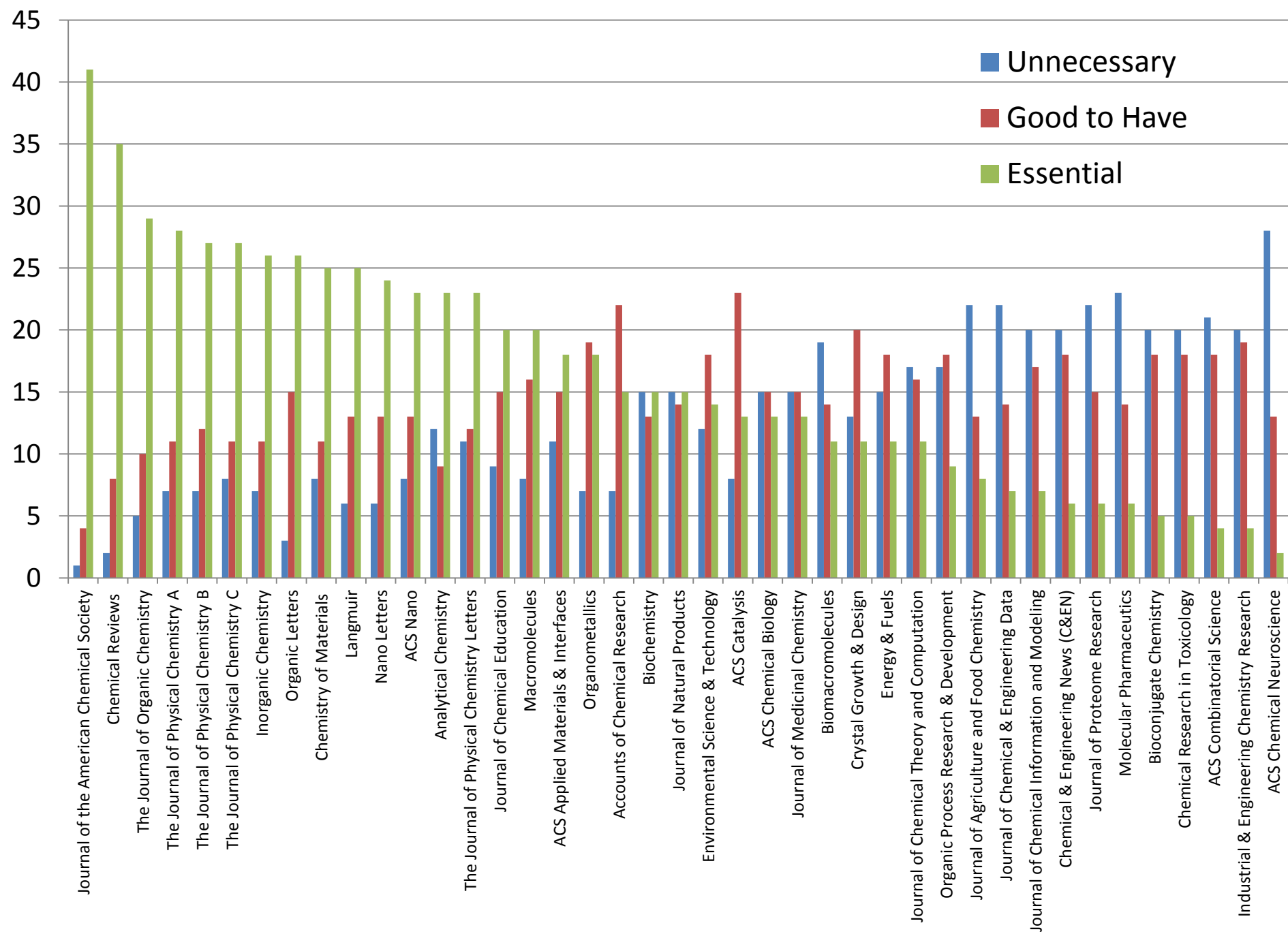
User Survey

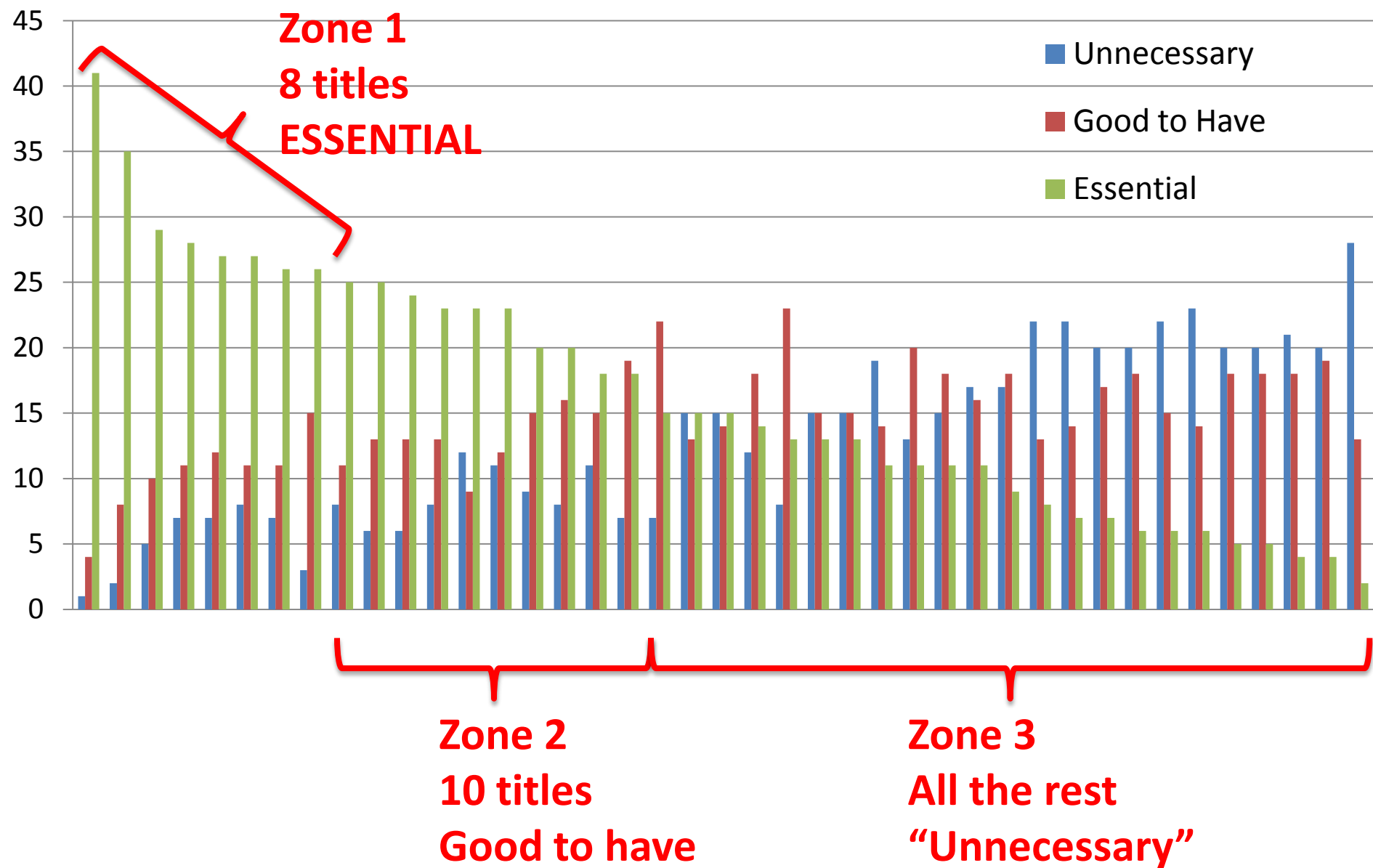
Survey Details

- Fluid Surveys software
- Link sent through Department of Chemistry email list
- Remained open for 3 weeks (Aug/Sept 2013)
- One reminder sent

Survey Details

- 48 responses (of a possible 130)
= 36.9% response rate
- 12 of 18 faculty responded
- 26 of 80 grad students responded
- Asked to rank each ACS journal by
 - Essential
 - Good to have
 - Unnecessary





To Keep (Based on Survey)

ACS Journal Title

Journal of the American Chemical Society

Chemical Reviews

The Journal of Organic Chemistry

The Journal of Physical Chemistry A, B, & C

Inorganic Chemistry

Organic Letters

Zone 1

ESSENTIAL

To Keep (Based on Survey)

ACS Journal Title

Chemistry of Materials

Langmuir

Nano Letters

ACS Nano

Analytical Chemistry

Journal of Physical Chemistry Letters

Journal of Chemical Education

Macromolecules

ACS Applied Materials & Interfaces

Organometallics

Zone 2

Good to have

Survey Comment

“A lot of the Key journals like Chem Rev and JACS must be kept at all cost. The more specialized ones like nano letters we could probably survive without (Probably much cheaper just paying for articles used).”

Survey Comment

“In case we don't have a subscription to a journal, it is of utmost importance that there is a mechanism so that timely access to selected pdf files can occur.”

To Keep (Overall) – Essentials (10)

ACS Journal Title
Journal of the American Chemical Society
Chemical Reviews
The Journal of Organic Chemistry
The Journal of Physical Chemistry A, B, & C
Inorganic Chemistry
Organic Letters
Journal of Agricultural and Food Chemistry
Environmental Science & Technology
Langmuir
Organometallics

To Keep (Overall) – **Good to Haves (8)**

ACS Journal Title
Analytical Chemistry
Journal of Physical Chemistry Letters
Biochemistry
Journal of Medicinal Chemistry
Chemistry of Materials
Nano Letters
ACS Nano
Macromolecules

To Keep (Overall) – **Wildcards (2)**

ACS Journal Title
Accounts of Chemical Research
Journal of Chemical Education

Conclusions

- This analysis was a lot of work but...
 - Enables me to feel more confident in making the hard choices
 - Several sources of data supporting my decisions = easier to convince researchers (evidence-based)
 - Including researchers in the decisions gives them a voice and “gets them on side”



Conclusions

- Dept of Chem researchers NOT only users of this bundle (as we previously assumed)
 - Might have important implications down the road

Limitations

- Bradford's Law works best for sub-disciplines (i.e. not entire field of chemistry!)
- Only Dept of Chem researchers studied (except for usage data)
- Only the last 3 yrs of data included
- Data represents a current “snapshot”
 - Cannot necessarily predict future patterns
- Not a “bullet-proof” analysis

Discussion

- Comprehensive methodology necessary?
 - Time consuming, labour intensive
 - Likely not practical for much larger, multi-disc bundles (e.g. SD Freedom Collection)

Discussion

- Worthwhile in some cases, such as when...
 - Faculty have strong connection to package
 - Politics/controversy involved
- = necessary to have evidence-based data to support case for which titles to cancel



Questions?

Acknowledgements:

C. Sorensen helped supply usage data and provided valuable comments on analysis

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The entire Department of Chemistry, UofS, was engaged and supportive during this process